Secrt. II-27—45,000—18-12-30.

Leg (1931) Department.

MS SERIES.

G.O. No. 1987 Pt

DATED 24.9.1931

[Despatch Abstract.]

Epidemic -

Report on an epidemic of jaundice in the Alipuram Jail, Bellary - Recorded.

C.F 30.

Local Self Government (P.H) DEPARTMENT.

Received 13 UG1931 19 . Registered 31960 19 .

Subject.

Report on an epidemic of Jaundice in the Alipuram Jail, Bellary - Forwarded to Government for information.

ENCLOSURES.
No.
Spare copies

R. No. 558-Hospl.

Station Madras. , Dated the 14th August 1931. 19

From (Name) Major-General C.A.Sprawson, C.I.E., V.H.S., I.M.S
(Designation) Surgeon-General with Government of Madras

To The Secretary to the Government of Madras,
Local Self Government (Public Health) Department.

Sir,

At the instance of the Director, King Institute, Guindy, I have the honour to forward herewith for the information of Government a copy of his letter Cur. No. 1149-D-5/31 dated 29th July 1931 together with a copy of the report of the in--vestigation unit in charge of M.R.Ry. Sanjiva Rao Avl., M.B.B.S., D.T.M., deputed to investigate the epidemic of Jaundice at the Alipuram Jail, Bellary. The Director intends sending an amplified report for publication in the Indian Journal of Medical Research. If it is accepted for publica--tion

publication by the Journal, it is reported, that it will not ordi-
-narily be published again as an appendix to the Annual Report
on the working of the King Institute, Guindy.

I have the honour to be,

Sir,

Your most obedient servant,

Major-General, I.M.S.,

Surgeon-General with the Government of Madras.

MAH./11-8.

Copy of letter Cur. No. 1149-D-5/31 dated the 29th July 1931 from the Director, King Institute, Guindy, to the Personal Assist-ant to the Surgeon-General with the Government of Madras.

Ref:- This office letter Cur. No. 1149-D-5/31dated the 9th April 1931.

I have the honour to forward herewith a copy of the report of the Investigation Unit sent under Dr. Sanjiva Rao, M.B.B.S., D.T.M., to investigate the epidemic of Jaundice at the Alipuram Jail, Bellary.

It is quite probable that the epidemic was due to a filtra-ble virus. In this connection I would like to refer to a similar epidemic, which was recently investigated in Surrey (England) and re-ported to the Royal Society of Tropical Medicine and Hygiene. It was suggested that a filtrable virus was the aetiological agent. While therefore a further investigation of the problem is desirable it is necessary to bear the above hypothesis in mind to adopt sui-table preventive measures in case such epidemics occur in future.

3

A report on an epidemic of Jaundice in the Alipuram Jail, Bellary.

(By Dr. R Sanjiva Rao., M.B.B.S., D.T.M.)

Introduction:-

Cases of epidemic Jaundice were observed amongst the convicts in the Alipuram Jail, Bellary,-- during the months of February, March, April, during the preceding ~~three~~ two years. The epidemic was however severe this year, there being a large number of fresh infections during that period. Amongst the convicts there were some who had been resident in the Andaman for some time. Since Weils Disease (leptospiral) is known to be prevalent there the possibility of the present epidemic in the jail being that of Weils Disease had to be considered. ~~An~~ A Unit was, therefore, sent to Bellary, (under Dr. Sanjiva Rao, M.B.B.S., D.T.M.,) to investigate if the epidemic was of leptospiral ~~in nature.~~ Jaundice.

History of the epidemic:-

The epidemics have had a definite seasonal prevalence.

Table I gives the number of monthly admissions for the years 1928, 1929, 1930 and 1931. It can be seen that the percentages of admissions is very much higher in the months of February, March and April, than in the rest of the year.

The symptoms have been very mild throughout and no fatality has been recorded so far. It received particular attention this year only on account of the unusually large number of admissions. In addition, a few cases appears to have also occurred this year among the servants of the jail staff, and apart from the few

cases

cases which occurred in the neighbouring convent, the epidemic was more or less confined to the Alipuram Jail. Enquiries made at the Head Quarters Hospital, Bellary, showed that the town enjoyed absolute freedom from the infection.

A survey of the general conditions of the infected place.

Climate and soil:-

The Alipuram Jail is situated about three miles from Bellary town. The climate is dry and rainfall very scanty.

Population:-

The Jail population at the time of the investigation comprised solely of moplah convicts. There was a considerable number of political prisoners up to the middle of March when however they were all released. A great number of them had suffered with jaundice, there being quite a good many at the time of release, who however would not stay on till complete recovery. The epidemics of cerebro-spinal menigitis, and dysentery, both bacillary and amoebae, had occurred among the inmates previously.

D i e t:-

The diet consisted of rice, dhal, vegetables and beef The diet remains unaltered throughout the year.

Housing:-

The prisoners are housed in barracks which are airy and well ventilated. The flooring is of Cuddapah slabs. Infection was not confined to any particular group of barracks.

Occupations:-

The jail population is engaged in different

occupations

occupations as weavers, blacksmiths, carpenters etc. There is no agriculture to speak of but a few are engaged in gardening. The infection occurred among all these different classes of prisoners.

Arrivals from the Andamans:-

There were 8 arrivals from the Andamans in 1929, 4 in 1930 and none up to the time of the visit of the Unit in 1931. Of these none gave a history of having suffered from jaundice either in the Andamans or here.

Water supply:-

Water supply is different from that of the town. The neighbouring convent has however the same supply.

Bathing arrangements:-

There are long cemented troughs filled with water available for this purpose. There is no natural tank or pond within the precincts or in the neighbourhood to which the prisoners could have any access.

Storing of provisions:-

The provisions are stored in a special block with a good rat-proof flooring of Cuddapah slabs.

Sanitation:-

The sanitary bandobust is excellent and fly incidence is very low.

R a t s:-

As has been observed above there are practically no rats owing to the nature of the flooring in the blocks.

Clinical features of the Epidemic.

The clinical symptoms in all the cases were essentially very mild. In the majority of cases, the

patients

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patients themselves did not complain of anything; but they were discovered during the morning parade by the medical officer on duty on noticing the icteric tint of the conjunctivae. The following main symptoms were observed:-

F e v e r:-

There were practically no pyrexial symptoms. Of the 21 cases investigated only 4 had pyrexia, the duration being 5 days in one case, 3 days in another and 1 day in the remaining two. In no case was hyper pyrexia recorded. In the two cases where the fever lasted for more than 2 days, the temperature was remittent and came down by lysis.

Jaundice:-

Jaundice was not intense. Presuming the patients were picked out on the first day the icterus appeared, it took about a month for the jaundice to clear. It was marked during the first week.

Haemorrhages:-

No haemorrhages of any kind were recorded in these cases.

Alimentary system:-

There was no appreciable gastric disturbance noted previously. The liver could just be felt below the costal margin in a few cases, but it was not tender. Splenic enlargement was not noticed.

Nervous system:-

This was found to be normal. Menigeal symptoms were absent.

Blood:-

The blood picture was found to be normal.

The

The following was a typical differential count noted:-

Polymorphos:-	59 %
Small lymphos:-	23 %
Large "	17 %
Eosinophils:-	1 %

Urine and Faeces:-

Both bile salts and bile pigments were present. There was no trace of albumen. Faeces were clay coloured.

Laboratory Investigation:-

p 12 insp

The main items of laboratory tests and investigation and the ~~with~~ results obtained have been listed in Table II. It must be stated here that the whole work was directed towards isolating L.ictero haemorrhagiae, on the probability that the epidemic was leptospiral in nature.

The duration of illness of the cases investigated ranged from the day of onset to over 3 weeks, so that any chance of missing the suspected cause - L.ictero haemorrhagiae was eliminated.

* results of investigation are described

The laboratory ~~work can be arranged~~ under 4 heads:-

1. Direct examination.
2. Cultural examination.
3. Guinea pig inoculation.
& 4. Adhesion test.

(1) Direct examination:-

i. Blood:- Blood smears stained with Fontana and Leishman as well as dark ground examination were uniformly negative.

ii. Urine:- Dark ground examination as well as stained smears of the centrifuged deposits were all negative.

iii. Faeces:- Stools examined for cysts of E. hystolytica were all negative.

(2) Cultural examination:-

Rabbit serum saline medium was used, consisting of serum 1 part and saline 9 parts.

The quantities of material used were, about 1 c.c. of blood and 3 c.c. of urine. The cultures were examined from time to time for a period of over three weeks, but there was no growth of L.ictero haemorrhagiae.

The faeces were cultured on McKonkey's medium but no non-lactose fermenters were isolated.

(3) Guinea pig inoculation:-

Very young guinea pigs were used for the purpose. About 3 c.c. of blood and 5 c.c. of urine were inoculated intraperitoneally. The animals were kept under observation for a period of over 3 weeks at the end of which all the animals were found to be perfectly healthy.

(4) Adhesion test:- For this purpose

~~Andamen~~ strains of L.ictero haemorrhagiae, kindly sent by the Director of Pasteur Institute, Rangoon, were used.

Equal parts of the patients' serum, leptospiral culture and a bacterial emulsion B.coli were mixed and incubated for 20 minutes and then examined under dark ground. No adhesion phenomenon was noticed in any case.

Comments.

The definite seasonal prevalence of the epidemic suggests specific infection. Jaundice of an epidemic character is usually associated with Lepto-

~~spira~~ spiral

Leptospiral infection, and the presence among the population of a few from the Andamans where Leptospirosis is known to be endemic, ~~leads~~ led us to the consideration of the epidemic as being one of Weils Disease. The epidemic however started some 5 months after the last arrival from the Andamans. Since none of them gave any history of, or showed any symptoms of Weils Disease, the probability of their contributing in any way to the epidemic is very remote. The epidemic had occurred during the driest months of the year. The soil of the place is rocky and dry. There is no natural tank or pond within the precincts and the whole population is under control. The occupations and the movements of the infected persons were, therefore, not such as to expose them to the risks of a leptospiral infection. The diet was the same throughout the year and had not produced any alimentary disturbances. The water supply which is common to both the jail and the convent, could not be incriminated as only a small portion of the population using the same water supply had been infected. The clinical features in all cases were very mild and there was not a single case exhibiting any of the more severe manifestations of Weils Disease such as haemorrhages etc. Finally the laboratory findings were negative in all the cases investigated.

Conclusions.

The present investigation concentrated its attention mainly towards finding out if the infection was leptospiral in nature; but negative laboratory findings, the epidemiological factors, and the clinical features of the epidemic rule out this hypothesis. The exact nature of the infection thus remains undetermined. The epidemic subsided about the middle of May and further useful work could be done towards finding

out

out the aetiological agent of the disease in case such epidemics were reported in future. Epidemics having the clinical character noted here have been recorded from time to time, e.g., in the West Africa (Beeukwes, Walcott and Kumm) and in various parts of the United Kingdom and the Continent. Indeed, it has been suggested that the disease is spread by the naso-pharyngeal pharyngeal secretions - "Droplet" infection. (Glover and Wilson). As it is not justifiable to assume the spirochaetal nature of such epidemics in the absence of bacteriological or serological evidence, the existence of a distinct type of infectious jaundice of non-spirochaetal aetiology has been suggested by some. The present epidemic supports that hypothesis.

References:-

Taylor and Goyle Leptospirosis in the Andamans. Indian Medical Research Memoirs No. 20.

Beeukwes, Walcott and Kumm - Obscure epidemic disease associated with jaundice. Tr. of Royal Soc. of Tr. Med. & Hyg. Vol. XXIV, No. 4.

Glover and Wilson. An extensive epidemic of Catarrhal Jaundice. Lancet March 28, 1931.

*****

T.K./-

Table I.

	1928		1929		1930		1931	
	Cases.	Jail population.	Cases.	Jail population.	Cases.	Jail population.	Cases.	Jail population.
January.	..	..	..	2312	..	1647	19	1921
February.	..	..	..	2312	4	1675	62	1895
March.	..	..	18	2207	3	1575	120	1602
April.	1	3452.	24	2123	4	1531	87 till 10-4-31.	--
M a y.	..	..	11	2085	..	1492		
June.	..	..	14	2033	..	1492		
July.	..	..	7	2026	..	1478		
August.	..	..	1	1992	2	1478		
September.	..	..	1	1970	0	2484		
October.	1	2554	1	1883	1	2415		
November.	..	..	3	1862	0	2345		
December.	1	2352	2	1724	0	2120		

T.K./-

No.	Designation of patient.	Residential block.	Occupation in Jail.	Duration of illness at the time of laboratory investigation.	Symptoms. Nature of infection.	Duration of fever.	Jau
1	C. 1405	9	Blacksmith	14 days.	Mild.	Nil.	+
2	C. 188	5	Rope-weaving	15 "	"	Nil.	+
3	C.8604	3	Overseer.	15 "	"	3 days.	+
4	C.6632	3	Stores.	13 "	"	Nil.	+
5	C.6869	5	eaving	22 "	"	1 day.	+
6	C.5317	2	-do-	18 "	"	1 "	+
7	C.5958	8	Gardening	10 "	"	Nil.	+
8	C.6690	2	Weaving.	12 "	"	Nil.	+
9	C.5663	2	-do-	5 "	"	5 days.	+ +
10	.5591	2	-do-	19 "	"	Nil.	+
11	C.8294	8	Stores.	6 "	"	Nil.	+
12	C.6430	2	Weaving.	7 "	"	"	+
13	C.8474	3	Sweeper.	2 "	"	"	+ +
14	C.6733	9	~~Carpentry~~. Carpentry.	5 "	"	"	+ +
15	C.9275	5	Rope-weaving	3 "	"	"	+ +
16	C.8521	8	Sweeper.	3 "	"	"	+ +
17	C.8612	9	Carpentry.	4 "	"	"	+ +
18	C.5379	4	Sweeper.	1 day.	"	"	+ +
19	C. 1479	4	Bhisty.	1 "	"	"	+ +
20	C.4273	14	Cooking.	1 "	"	"	+ +
21	C.5734	2	Weaving.	1 "	"	"	+ +

Hemorrhage.	Laboratory investigations.															
	Urine.						Blood					Faeces.				
	Bile	Albumen.	Direct smears	Dark ground examination	Culture.	Guinea pig inoculation	Direct smears	Dark ground examination.	Culture	Guinea pig inoculation.	Agglutination test.	Microscopic examination.	Cultural examination.			
Nil.	+	Negative.	Negative.	Negative.	Negative.	Negative.	Negative.	Negative.	Negative.	Negative.	Negative.	Negative.	Negative.			
Nil.	+															
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Sect 11-5 [illegible]

13 L&S (DH) DEPARTMENT.

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14/2/19

READ AGAIN G.O. No. ..... dated ..... 19 .

.. .. 19

READ ALSO:—

C. No. 31960 From the L.S., No. 5588/1931 dated 14.8. 1931 .

.. .. 19 .

.. .. 19 .

ORDER.

No. 1787 DH, dated 24-9- 1931.

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28/8/31

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3

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Dpr. SH

Date 25/9/31 1924

1 2 3

Apply to

To Sec L.S.

copy to the D.G. of Prisons (also to)

.. .. Law (Genl) Dept (do).

note This may be sent to Law (General) Dept for perusal

KBM
28/8

24/8/31

Law (Genl) D

Lmg 2 not concerned Ep 29/8

(The subject matter does not relate to a local boundary)

29/8

1931 DEPARTMENT

LG 60836
31-8-31 31960-1 DH DB
31/8/31

Law (Genl) Dept.

AS.

may be perused and returned to L.S.G.
that Dept may be requested to communicate
a copy of the proceedings together with the S.G's
report to this Dept and the I.G. of Prisons.
The file may be circulated to Hon C2
in due course.

AJ 1.9.31 1/9 — 1/9

S
LWO
2/9/31
L.S.G.

DS L.S.G. (P.H.) Dept

The necessary addn has been made
to the despatch enclosed with reference
to the suggestion at A above.

2 The file may be circulated to
Hon M1 & Hon C2.

Sd
3.9.31

BR
6/2/31

(Secretary)

LG 6083C-1
3.9.31.

05
7/9

SECRETARY TO GOVERNMENT
3 SEP 1931

M1 Sd 2/9

C2 22-9-31

23 SEP 1931

Sectt. II-27--45,006--18-12-33.

L. S. G (1931) Department.

Ms SERIES.

G.O. No. 1801 P. H.

DATED 25 - 9 - 1931

[Despatch Abstract.]

Plague - Bellary Municipality - Appointment of a rat destruction staff - Cancellation of the Council's resolution - Collector's orders confirmed.